REMARKS/ARGUMENTS

A. Status of the Claims

Claims 1, 2, 13, 15, 17, 20, 55, 58, 59, 6-64 and 71-84 are pending in the application, under consideration, and stand rejected under 35 U.S.C. §112, first and second paragraphs, 35 U.S.C. §102 and 35 U.S.C. §103. The specific grounds for rejection, and applicants' response thereto, are set out in detail below.

B. Enablement Rejection

All pending claims stand rejected for lack of enablement under 35 U.S.C. § 112, first paragraph. According to the examiner, the claims suffer from three fundamental problems. First, the claims set forth that the cells of the composition achieves certain levels of gene expression, but the span over which this occurs (7 to 28 day) is one in which the levels would be expected to differ. Second, the examiner argues that the data that are provided results from pooling data from a variety of different compositions, thereby obscuring exactly what conditions generated exactly what results. Third, the examiner argues that the application fails to demonstrate "wound healing." Thus, the specification is believed to be unable to support the invention as presently claimed.

With respect to the first ground of rejection, applicant notes the differences between shelf life (7 to 28 days) and incubation at 37 °C. The values given in subpart (i) of claim 1 relate to the latter, not the former. In any event, applicant has clarified the claims to indicate that the values are for time periods of less than 14 days (see Table 6).

With respect to the second ground of rejection, the claims have been revised to recite the values from Table 6, which involves a fibrin-only treatment. Thus, these values are not pools of data using non-fibrin treatments.

With respect to the last ground of rejection, applicants submit that the rejection is improper. No particular level of wound healing is required. No evidence is presented that the claimed invention cannot, nor would not be expected to, heal wounds. In contrast, it is will known that the recited markers that are expressed at elevated levels are known to be would healing agents (see Applicant's specification, generally). In this regard, a simple internet search confirms that it is well-known that each of apolipoprotein D (ApoD), matrix metalloprotease 2 (MMP2), collagen 3a1 (Coll3a1), and smooth muscle actin (SMA) are relevant in wound healing applications. Further, the specification clearly provides a guide on how to both make the claimed composition and how to use the composition. Thus, undue experimentation would not be required to test the composition for its effectiveness to heal a wound; indeed, the increased expression levels of the recited markers coupled with the general knowledge that such markers are indicative of wound healing supports the notion that the claimed compositions are useful to treat wounds. Together, these facts argue against the propriety of the rejection.

Claims 62 remains rejected as lacking enablement. Applicant traverses, but claim 62 has been canceled without prejudice or disclaimer.

Applicant respectfully requests that the enablement rejections be withdrawn for at least the reasons given above.

C. Indefiniteness Rejections

Claim 62 remains rejected as indefinite. Applicant traverses, but claim 62 has been canceled without prejudice or disclaimer.

All pending claims are newly rejected as indefinite. Applicant traverses, but claim 1 has been amended to address the examiner's concerns.

Applicant respectfully requests that both of these rejections be withdrawn.

D. Anticipation Rejections

Three separate anticipation rejections are maintained against all claims other than claims 79 and 80. Though the specific teachings of the references differ, they are all based on the same proposition that, while not setting forth explicitly the properties as now recited in the claims, the fact that the compositions appear indistinguishable means that such properties are inherent in the prior art. From this, the examiner finds the instant claims anticipated.

Applicant traverses the rejection, but in the interest of advancing the prosecution, the claims have been amended to recite, in part (ii) of claim 1, that "75-99% of the cells of the composition have a banding pattern of polymerase chain reaction (PCR) products resulting from differential display identical or similar to that shown in FIG. 4 or FIG. 5 for nucleic acid expression in fibrin ...." Support for this amendment can be found in the paragraph bridging pages 10-11 of the specification. Thus, this now is not simply a question of whether ***some*** cells in the cited art might have the expression profiles according to the claimed invention, but rather the identification and isolation of cells such that the population ***as a whole*** contains a sufficient percentage of such cells.

The following discussion, taken directly from the specification, is instructive on why this aspect of the present invention constitutes a significant advance over the art of record:

[0026] The present inventors have found that different methods as described herein can be used to identify a gene expression profile characteristic of a composition which has a wound healing phenotype. The genes are expressed at the given levels in various conditions while maintaining the wound healing phenotype.

[0027] The invention provides an approach to treatment of chronic wounds based on delivering cells with the potential to promote and accelerate the healing process. ***Although developing a viable, multilayered skin equivalent (for example, appropriate cell types organised into functional and anatomically relevant structures) remains a worthwhile goal, so far this has proven elusive. However, for many situations, the present invention shows that such an approach may be unnecessarily complex and that a simpler solution, that of simply providing cells at the appropriate stage of development and exhibiting a particular phenotype in a wound-healing composition for rapid, convenient and accurate application to wounds, is remarkably effective. The cells used in the present invention develop surprising rapidly to have a wound healing phenotype, which phenotype is characterised by the level of gene expression or the differential display banding as indicated herein, to encourage immediate wound healing. It is believed that the wound healing phenotype represents the optimal phenotype for accelerating or assisting wound healing.*** The invention allows delivery of such cells (in the composition) to a wound, preferably in a manner which is consistent with the maintenance of the wound-healing phenotype.

[0028] ....

[0029] In a preferred embodiment, semi-quantitative or quantitative PCR (TaqMan.RTM.) may be used to measure the amounts of particular genes being expressed by the cells of the composition. The present inventors have assayed various genes as indicated in the specific embodiments given below and have shown that there is a subset of genes which can be deemed to be characteristic of the wound healing phenotype.

[0030] ....

[0031] ....

[0032] Through analysis of gene expression, it has been observed that the four genes defined above are indicative of a cellular phenotype which is effective at accelerating or assisting wound healing, i.e. a wound healing phenotype. The expression of these genes has been observed to be independent of storage temperature (for a limited time period), and thus the wound healing profile of the cells is maintained throughout storage and shipping which may take place during that time period.

> [0033] Differential display is a PCR-based method using non-specific primers, which produces a banding pattern when run on a gel that is unique to the sample of interest. This results in a "barcode" type pattern of gene expression. An advantage of this process is that it produces an easily recognisable pattern that can be analysed without numerical manipulation, or knowledge of the actual genes involved. The differential display pattern as shown in FIG. 4 and/or FIG. 5 for fibroblasts cells incubated in fibrin has been found to be characteristic of a wound healing phenotype. Display patterns similar, i.e. with at least 75 to 99%, preferably at least 90 to 99%, of the same expression bands, are within the scope of the present invention.

(Emphasis added). In particular, applicant draws the examiner's attention to the highlighted portion of the above-quoted passages, which explains the unique and unexpected properties flowing from the identification and isolation of an particular subset of fibroblasts that are "primed" for implantation into a wound. These properties, previously unheralded in the art, provide a benefit in the wound healing process. The prior art, whether view explicitly or inherently, fails to provide such teachings.

In light of the amendment and the lack of relevant teachings in the cited art, applicant requests that all three anticipation rejections be withdrawn for at least these reasons.

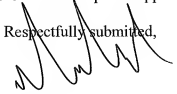
E. Obviousness Rejection

Claims 79 and 80 are rejected as obvious over Meana in view of Muhart. As discussed above, Meana does not anticipate claim 78, from which claims 79 and 80 depend. Muhart, providing only a teaching of a flexible pouch container, does not cure the defects in Meana, as set out above. As such, this rejection also is improper. Applicant therefore respectfully requests that the obviousness rejection be withdrawn.

F. Conclusion

Applicant believes that this case is in condition for allowance and such favorable action is requested. The Examiner is invited to contact the undersigned Attorney at 512.536.3020 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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